Studies in Cyperaceae in southern Africa: 12. A new specific name in *Fuirena* Rottb.

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It is shown that *Fuirena microlepis sensu* C.B. Cl. in Flora Capensis 7 (1898) is not the same as *F. microlepis* Kunth (1837). Clarke's taxon is therefore renamed *F. obcordata* P.L. Forbes. A description and illustrations are given and a discontinuity in distribution is noted.
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Daar word gewys dat *Fuirena microlepis sensu* C.B. Cl. in Flora Capensis 7 (1898) nie dieselfde as *F. microlepis* Kunth (1837) is nie. 'n Nuwe naam, *F. obcordata* P.L. Forbes, word dus aan Clarke se takson gegee. Die spesie word beskryf en geïllustreer en 'n disjunksie in verspreiding word vermeld.
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Typification and Nomenclature

When *Fuirena microlepis* Kunth (1837) was published, a fairly detailed description was given but the material on which the species was based was indicated only by the phrase 'Cap. b. spei, ad oram orientalem. Drège legit.' Information about type specimens has been supplied several times, however, by C.B. Clarke, the first being in a note written by him in 1889; this is attached to the cover labelled *F. microlepis* at Kew and it states:

'microlepis Kunth Enum. v.2 p. 182 — I have seen Kunth's *two* types viz. Drège nn. 4438, 4439 in L. Berol. — both reduced to F. pubescens by Boeckeler but I think not very near pubescens.
Drège n. 4439 is the plant in this cover which I call microlepis.
Drège n. 4438 is F. gracilis Kunth: these two are very close.'

There appears to be an incorrect digit in each of the type numbers above. Boeckeler (1871) cited *Drège 4338* and *4339* under *F. pubescens* (Poir.) Kunth and the same pair of numbers was also given by Clarke (1894, 1898) on both of the occasions when his observations of 1889 were subsequently published. In spite of the error, Clarke's hand-written note is of interest because it confirms that these specimens, like the majority of Kunth's types (Stafleu & Cowan 1979) were housed in Berlin. Unfortunately, this material can no longer be found, and it must be assumed that it was destroyed during the war (Dr H. Ern pers. comm.). There are duplicates, however, of both numbers at Paris and these must be designated lectotypes of Kunth's species.

There can be no doubt that Kunth's types are specimens of two different taxa. *Drège 4338* is very young and is difficult to identify with complete certainty. Clarke (1894, 1898) named it *F. gracilis* Kunth, but, like Boeckeler (1871), I regard it as a specimen of *F. pubescens*. *Fuirena gracilis* and *F. pubescens* are often very similar in facies, but *Drège 4338* does not have a distinct glabrous band on the distal edge of the glumes as in *F. gracilis* and a few other, probably conspecific species.

Kunth (1837) described hypogynous scales in *F. microlepis*. These structures are present also in *F. pubescens* but they are usually reduced to submicroscopic outgrowths of the receptacle (Forbes 1980), which are easily overlooked. Occasionally, however, the segments of the inner whorl are large enough to be seen with a hand lens without difficulty, and may also be differentiated into an ill-defined claw and an enervate blade with acute apex; rarely, the scales are quite large and more complex in structure. Within this range there are plants which agree well with Kunth's description (1837) of *F. microlepis*, 'squamulis (in speciminibus floriferis) minutis, acutis vel acuminatis, enerviis, glabris'. *Fuirena microlepis* Kunth should

be placed in synonymy under *F. pubescens*.

The hypogynous scales in the taxon typified by *Drège 4339* are 'broadly obtriangular, brown, 3-nerved, as long as the nut' (Clarke 1898). It is clear that Kunth's description applies only to *Drège 4338* and that the second component of *F. microlepis* must be renamed. The epithet, 'microlepis', cannot be used, as was done by Clarke (1898) 'to avoid introducing a new name', and none of the synonyms listed below can be taken up as they have been, or are still being, used for other species in the genus.

Description

Fuirena obcordata *P.L. Forbes* nom. nov.

Type: Port Natal, [Durban], *Drège 4339* (B holo.†; P! lecto., here designated)

Fuirena microlepis Kunth, Enum. eratio plantarum 2: 182 (1837) *quoad exsicc. Drège 4339, descrip. et exsicc. Drège 4338 excl.*

Fuirena glabra Eckl. ex Krauss, Pflanzen des Cap- und Natal-Landes (Cyperaceae) in Flora 48: 757 (1845), *non* Kunth, Enum pl. 2: 182 (1837). Syntypes: Natal, Umlaas, *Kraus 191* (K!), *59* (K!).

Fuirena pubescens (Poir.) Kunth, Boeck. in Linnaea 37(1): 104–105 (1871) and Cyper. Herb. Berlin 1: 640–641 (1871) *quoad exsicc. Drège 4339.*

Fuirena microlepis sensu C.B.Cl. in Dur. & Schinz, Consp. Fl. Afric. 5: 647 (1894), in Thiselton-Dyer, Fl. Cap. 7: 262 (1898), and Ill. Cyper.: t. 59, f. 2 (1909); *sensu* Schonland, S. Afr. Cyper., Mem. Bot. Surv. S. Afr. 3: 52 (1922) *exsicc. Sim 2712 excl.; sensu* Gordon-Gray in Ross, Fl. Natal, Mem. Bot. Surv. S. Afr. 39: 108 (1972); *non* Kunth, Enum. pl. 2: 182 (1837), *spec. Drège 4339 excl.*

Fuirena coerulescens Steud. var. glabrescens Schonl., S. Afr. Cyper., Mem. Bot. Surv. S. Afr. 3: 51 (1922) *quoad exsicc. Wood 9969.*

Rhizome strong, 4,0–6,0 mm in diameter when dry. *Culms* contiguous or up to 15 mm apart on rhizome, 0,5–1,4 m high, 3,5–5,5 mm in diameter near base, 3-sided, glabrous. *Leaf sheaths* shorter than internodes, glabrous except proximal sheaths which are usually sparsely to densely hirsute, sometimes with short fine hairs interspersed; *ligule* a tubular membranous collar 1,0–1,3 mm high, glabrous or puberulous; *leaf blades* up to 200 (–290) mm long, 5–6 (–8) mm wide, erect or suberect, flat with midrib projecting abaxially and margins often slightly revolute when dry, adaxial side of midrib and angle between sheath and abaxial side of blade sometimes hispidulous, margins and abaxial side of midrib sometimes sparsely strigose. *Inflorescence* a terminal cluster of 1–5 (–8) sessile, subsessile and pedunculate heads of spikelets, sometimes a lateral partial inflorescence of 1–3 heads also present; heads compact, up to 10 (–15) mm in diameter; inflorescence stems glabrous to pubescent or pilose-pubescent; bract at base of terminal spikelet clusters evaginant or shortly vaginant, bract subtending lateral partial inflorescence vaginant, indumentum of bracts like that of leaves or hairs more dense and extensive. *Spikelets* 5 (–8) mm long (awns excluded), ovoid, light-brown. *Glumes* pubescent with few to numerous long stiff bristles interspersed on all, many, or on few proximal glumes only; basal glume usually sterile, 3-nerved, long-awned; second glume usually sterile, short, 2-nerved, muticous; remaining glumes fertile, 3,5–4,0 mm long (awn included) with elliptic to obovate-elliptic, convex, 3-nerved body and awn 1,0–1,2 mm long. *Outer hypogynous* whorl usually absent, rarely a very small outgrowth present on receptacle opposite and below each stamen. *Inner hypogynous whorl* comprising 3 substipitate, aristate scales, alternating with stamens, about equal to nutlet in length, variable in width within a single flower; scale claw short, hairy; scale blade obcordate to obovate, 3-nerved with marginal nerves curving inwards and uniting with mid-nerve near blade apex, margins incurved fimbriate; scale awn short, scabridulous, incurved over nutlet. *Stamens* 3; anthers 1,4–1,6 mm long, linear, crest small. *Nutlet* dull brown, 0,8–1,1 mm long, substipitate, obovoid, trigonous, with cylindrical papillate beak. *Pericarp epidermal cells* over broad faces of nutlet hexagonal or subhexagonal, arranged in irregular longitudinal rows, often appearing thick-walled under 10–20× magnification, actually thin-walled with deeply and closely rippled anticlinal walls (Figure 1).

Representative specimens

– **1723** (Singalamwe): Caprivi Strip, Singalamwe (–CB), *Killick & Leistner 3221* (K, PRE); Caprivi Strip, Kwando flood plain near south boundary (–CD), *Tinley 1526* (WIND).
— **2135** (Bazaruto): Bazaruto Island (–CA), *Mogg 28847* (K).
— **2531** (Komatipoort): Kruger National Park, Faai (–AB), *van der Schijff 358* (PRE).
— **2532** (Maputo): Lourenco Marques [Maputo], Costa do Sol (–DC), *Balsinas 655* (LISC).
— **2533**: Gaza, Zongoene (–AB), *de Koning 7826* (BM).
— **2632** (Bela Vista): Inhaca Island (–BB), *Mogg 31409* (J, K, SRGH), *Mogg 30372* (J, PRE, SRGH).
— **2632** (Bela Vista): Kosi estuary (–DD), *Strey & Moll 3866* (N, PRE).
— **2732** (Ubombo): Ingwavuma Distr., Muzi swamps (–BA), *Reid 1064* (PRE); M'Bazwane (–BC), *Strey 5133* (NH, PRE).
— **2832** (Mtubatuba): west of Charter's Creek (–AB), *Ward 2785* (NH, NU, PRE); Between St. Lucia and Mpathe Forestry Plantation (–AD), *Ward 7323* (PRE).
— **2930** (Pietermaritzburg): Clairmont (–DD), *Wood 9969* (NH).
— **3030** (Port Shepstone): 3 km north of Scottburgh (–BB), *Reid 564* (PRE).
Grid reference unknown: Delagoa Bay, *Junod* 232 (K); Port Natal, *Drège 4339* (P); prope Durban, *Wood 213* (BM, K, SAM); Umlaas, *Krauss 59, 191* (K).

Localities and herbaria have been cited according to Edwards & Leistner (1971) and Holmgren *et al.* (1981) respectively.

Discussion

Fuirena obcordata, F. hirsuta (Berg.) P.L. Forbes and smaller specimens of *F. umbellata* Rottb. are sometimes confused with each other. All are rhizomatous perennials with spikelets arranged in compact heads, and all have the same sort of indumentum on the glumes. *Fuirena hirsuta* can be recognized by its distinctly stipitate hypogynous scales with quadrate or subquadrate blades and by the longer beak and stalk of the nutlets; the inflorescence, moreover, usually consists of fewer but larger heads of spikelets than in *F. obcordata. Fuirena umbellata* differs from the other species by its five-sided culms and leaf-sheaths and by the five (or occasionally seven) large nerves in the leaf blades.

Fuirena obcordata has been named for the shape of the hypogynous scales. This is possible because the scales are more uniform in size and structure in this than in several other species of *Fuirena*. Variation has been found only in the width of the scales; it is commonly present within a single flower and is perhaps a consequence of the spatial relationship between rhachilla, flower and glume.

There have been other treatments of *F. obcordata* in the past. Boeckeler (1871) adopted a remarkably broad species concept by citing the type specimen not only of *F. obcordata* but also of the Indian species, *F. wallichiana* Kunth, under *F. pubescens*. These three species are quite distinct and Boeckeler's arrangement has not been upheld by subsequent workers. Schonland (1922) stated that he had seen little of the material cited as *F. microlepis* by Clarke (1898) and he

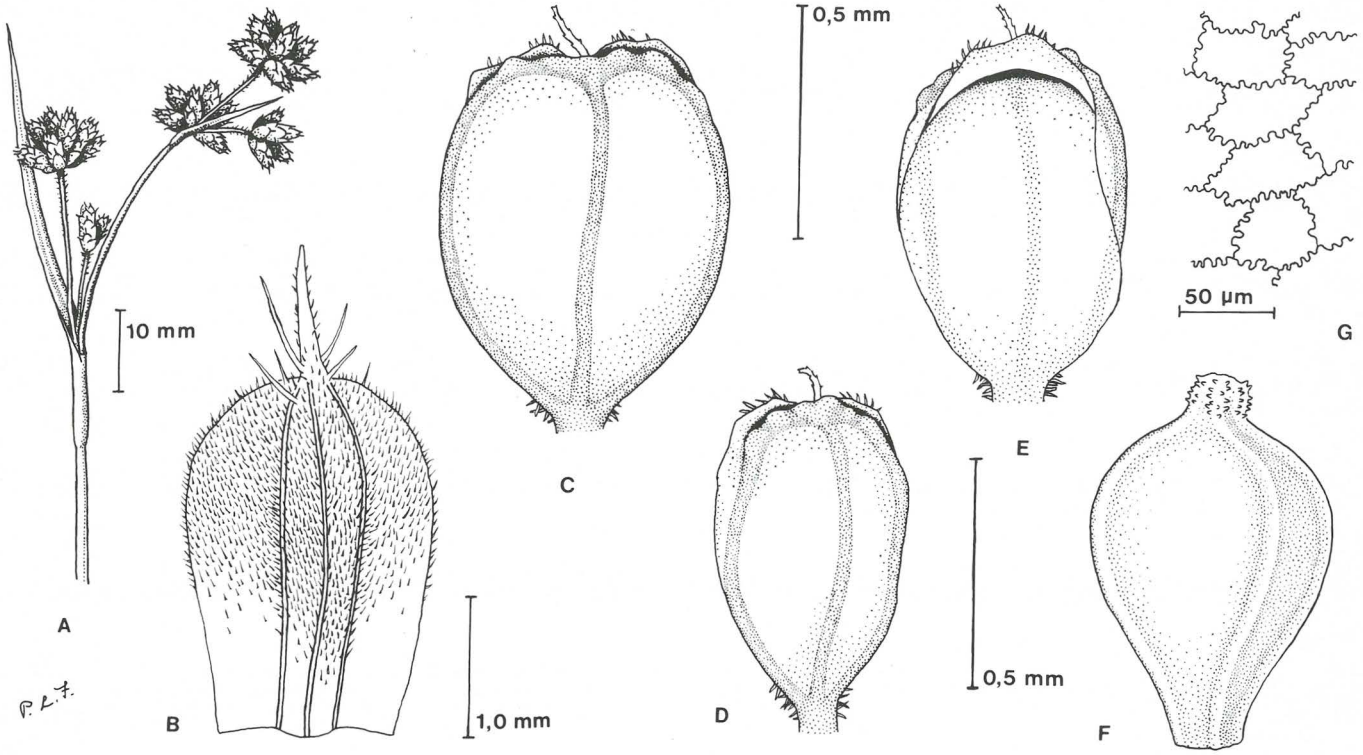

Figure 1 *Fuirena obcordata*. A. Inflorescence; B. Glume; C,D. Hypogynous scales, abaxial surface; E. Hypogynous scale, adaxial surface; F. Nutlet; G. Pericarp epidermal cells. A from *Mogg 30372*, B – G from *Mogg 31409*.

seems to have confused this taxon with *F. hirsuta*. Schonland (1922) cited *Wood 9969*, a specimen of *F. obcordata*, under *F. coerulescens* Steud. var *glabra* Schonl., which has since been placed in synonymy under *F. hirsuta* (Forbes 1969) and *Sim 2712* a specimen of *F. hirsuta* was cited under *F. microlepis*, now *F. obcordata*.

Fuirena obcordata grows in very wet places, sometimes in swamps and the lower part of the culms may be submerged. The flowering season is summer. It has been collected mainly in the eastern part of southern Africa but has also been found in the Caprivi Strip (Figure 2). Plants from the central region are similar in all respects to those which grow at and near the coast and recognition of subspecies is not warranted. *Fuirena obcordata* was not included by Podlech (1967) in his account of the Cyperaceae of Namibia and this is a new record for the region.

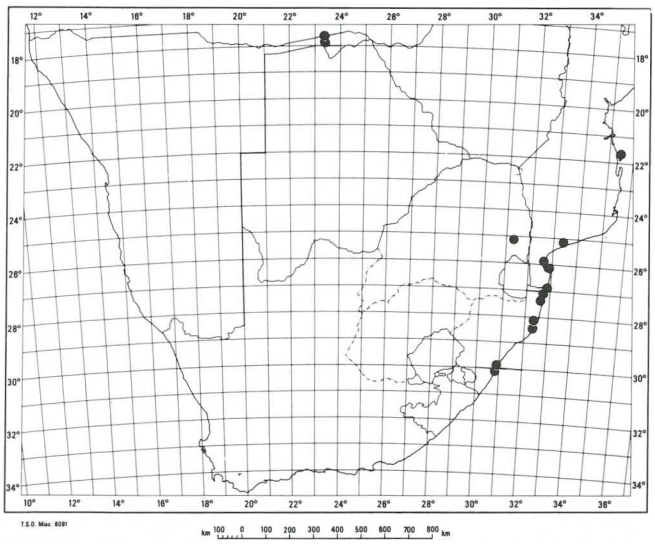

Figure 2 The known distribution of *Fuirena obcordata*.

The range of distribution of *F. obcordata* has been greatly extended by its discovery in Namibia, and it is suggested that its full range is still unknown. As more material is collected, the disjunction might become smaller or disappear. Suitable habitats exist in the gap, unless of course, *F. obcordata* has some unsuspected special environmental requirement. If not, its distribution will possibly be found to follow the same general pattern as that of *F. umbellata* in southern Africa. Both of these species are rhizomatous perennials which grow only in very wet places in warmer parts. *Fuirena umbellata* is sympatric with *F. obcordata* in South Africa, Mozambique and Namibia, and it also occurs in Botswana and Zimbabwe where, perhaps *F. obcordata* awaits discovery. If the range is not eventually extended by further collections, another explanation for the disjunction will then have to be considered.

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